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~~at least one light detector detecting light from the at least one light source of each of the two or more hand-held devices~~

AM Subj

~~a control unit that receives image data from the at least one light detector, wherein the control unit detects the positions for each of the two or more movable hand-held devices in at least two dimensions from the image data from the at least one light detector and translates the positions for each of the two or more movable hand-held devices to separately control two or more respective features on a display.~~

26. (Amended) The system of claim 24, wherein the wavelengths of the at least one light source of the two or more hand-held devices are different.

REMARKS

Reconsideration of all grounds of rejection in the Office Action, and allowance of all the pending claims are respectfully requested. The specification and drawings have been amended as suggested and/or required by the Office Action. Claim 26 has been amended to clarify the difference between it and Claim 25.

SUMMARY OF THE REJECTION:

Claims 1-9 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Lin. (U.S. Patent 6,346,933).

Claim 23 stands rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Rice (U.S. Patent 5,973,672).

Claim 10 stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over Lin in view of Kim et al. (U.S. Patent 6,424,335).

Claims 11-16 stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over Lin and Kim in view of Fitts. (U.S. Patent 5,175,601).

Claims 17-21 stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over Lin in view of Arita et al. (U.S. Patent 6,188,388).

Claim 22 stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over Lin and Arita et al. in view of Fitts.

Claims 24-26 stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over Rice et al. in view of Kim et al.

Claim 27 stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over Rice et al. and Kim et al. in view of Fitts.

APPLICANT'S POSITION:

It is respectfully submitted that none of the present claims are anticipated or rendered obvious by the cited referenced.

Independent Claims 1 and 23 have been amended to recite that a light source in a movable hand-held device being capable of sending control signals to a remotely controllable device. As noted in the Summary Of The Invention, one of the objects of the present invention is to provide a system that enables a commercially available hand-held device, such as a TV remote, to be used as a pointing device on a display.

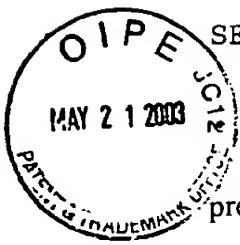
Lin and Rice et al. are cited in the Office Action as showing light source(s) in a movable hand-held device(s). In both Lin and Rice et al., the light sources are conventional light pointers (see, e.g., element 11 in Fig. 1 of Lin and element 15 in Fig. 1 of Rice et al.).

Kim et al. is cited in the Office Action as showing a digital pulse format suitable for infrared transmission and detection. As understood by Applicants, Kim et al. relates to a notebook computer with a detachable infrared multi-mode input device.

The Office Action states that it would have been obvious to use the pulse sources of Kim et al. in light sources of Rice et al. in order to allow for input devices that are energy efficient. Even if this is deemed so, Applicants respectfully submit that it would not be obvious to use a remote control (e.g., a TV remote) as a pointing device on a display. In this regard, Applicants respectfully submit that even if the light pointers of Lin or Rice et al. are modified to be energy efficient (assuming this is possible), nothing in the cited references suggests that any such modified light pointer would be or should be capable of also sending control signals to a remotely controllable device, as recited in Claims 1 and 23.

With regard to all other rejections, it is respectfully submitted that the dependent claims are all allowable at least based upon their dependency from Claims 1 and 23.

Reconsideration and withdrawal of all grounds of rejection are respectfully requested.



SERIAL NO.: 09/746,045

Docket US 000403

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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(Signature and Date)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: COLMENARES ET AL.

SERIAL NO.: 09/746,045 EXAMINER: L. Shapiro

FILED: December 22, 2000 ART UNIT: 2673

FOR: Communication System

VERSION WITH MARKINGS

Assistant Commissioner for Patents
Washington, DC 20231

Dear Sir:

In response to the Office Action dated February 26, 2003, Applicants request
Amendment of the above-identified application as follows:

IN THE SPECIFICATION:

Page 6, delete fourth paragraph referencing Fig. 1A

Last full paragraph on Page 7:

After the flashing of the LED 103 is initiated, the transmitted light 105 is focused by camera 111 and incident on a portion of the light sensing surface of a digital camera 111. Typically, digital cameras use a 2D light-sensitive array that capture light that is incident on the surface of the array after passing though the focusing optics of the camera. The array comprises a grid of light sensitive cells, such as a CCD array, each cell being electrically connectable to another electronic elements, including an A/D



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converter, buffer and other memory, a processor and compression and decompression modules. In the present embodiment, the light from the pointing device is incident on array surface 113 made up of cells 115 shown in Figcircle grid: 111a (which is a exploded view of a portion of the array surface 113 of digital camera 111).

Paragraph starting on at bottom of Page 7 and ending on top of Page 8;
Each image of the digital camera 111 is typically "captured" when a shutter (not shown) allows light (such as light from LED 111₁₀₃) to be incident and recorded by light-sensitive surface 113. Although a "shutter" is referred to, it can be any equivalent light regulating mechanism or electronics that creates successive images on a digital camera, or successive image frames on a digital video recorder. Light that comprises the image enters the camera 111 when the shutter is open is focused by the camera optics onto a corresponding region of the array surface 113, and each light sensitive cell (or pixel) 115 records an intensity of the light that is incident thereon. Thus, the intensities captured in the light sensitive cells 115 collectively record the image.

Page 8, first full paragraph:

Thus, flashing light 103 from the hand-held device 101 that enters the camera 111 is focused to approximately a point and recorded as an incident intensity level by one or a small group of pixels 115. The digital camera 111 processes and transmits the light level recorded in each pixel in digitized form to a control unit 121 in Figcircle grid: 111a.

IN THE CLAIMS:


(Amended) A system, comprising:
at least one light source in a movable hand-held device, the movable hand-held device being capable of sending control signals to a remotely controllable device;
at least one light detector that detects light from said light source; and
a control unit that receives image data from the at least one light detector,
wherein the control unit detects the position of the hand-held device in at least two-dimensions from the image data from the at least one light detector and translates the position to control a feature on a display.

23. (Amended) A system comprising:
two or more movable hand-held devices, each hand-held device comprising at least one light source at least one of the two or more movable hand-held device being capable of sending control signals to a remotely controllable device,
at least one light detector detecting light from the at least one light source of each of the two or more hand-held devices
a control unit that receives image data from the at least one light detector,
wherein the control unit detects the positions for each of the two or more movable hand-held devices in at least two dimensions from the image data from the at least one light detector and translates the positions for each of the two or more movable hand-held devices to separately control two or more respective features on a display.

26. (Amended) The system of claim 24, wherein the flashing wavelengths of the at least one light source of the two or more hand-held devices are different.

